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In Re Application of:		)
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Inventors:	Shugong Xu	)
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Title:	SYSTEM AND METHOD FOR TRANSPORTING MPEG2TS IN RTP/UDP/IP	) Customer No.: 55,286
		) Examiner: Siddiqi, Mohammad A.
		) Art Unit: 2454

Board of Patent Appeals and Interferences
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BRIEF ON APPEAL

This is an appeal from the rejection by Examiner Mohammad Siddiqi, Group Art Unit 2454, of claims 1-4, 7-8, 11-15, 18-19, 22-25, 28, 31-35, 38, and 41-44, as set forth in the CLAIMS APPENDIX.

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REAL PARTY IN INTEREST

The real party in interest is Sharp Laboratories of America, Inc., as assignee of the parent application in the United States Patent Office, with a recordation date of February 5, 2004, at Reel 014969, Frame 0605.

RELATED APPEALS AND INTERFERENCES

None.

STATUS OF THE CLAIMS

Claims 5-6, 9-10, 16-17, 20-21, 26-27, 29-30, 36-37, and 39-40 are canceled.

Claims 1-4, 7-8, 11-15, 18-19, 22-25, 28, 31-35, 38, and 41-44 are in the application.

Claims 1-4, 7-8, 11-15, 18-19, 22-25, 28, 31-35, 38, and 41-44 are rejected.

Claims 1-4, 7-8, 11-15, 18-19, 22-25, 28, 31-35, 38, and 41-44 are appealed.

STATUS OF AMENDMENTS

Amendments to the claims were presented in a paper received at the PTO on October 7, 2008. These claim amendments have been entered.

SUMMARY OF CLAIMED SUBJECT MATTER

The motion pictures expert group (MPEG)-2 standard requires that a receiver remain synchronized to a broadcasting device. Synchronization is accomplished through the use of a master clock in the broadcasting device and a slave clock in the receiver. The broadcasting device sends program clock reference (PCR) timestamps in the MPEG2 transport stream (TS) for the purpose of correcting the slave clock in the receiver. As long as the receiver slave clock is accurate, jitter in the transmission can be tolerated (specification: page 1, ln. 11 through page 2, ln. 11, see Figs. 10 and 11). An MPEG2 TS is comprised of packets, where each packet includes a header and a payload (Fig. 12). The PCR timestamp is inserted into header of a packet at the interval of at least once per 100ms (i.e. not every packet header includes a PCR time stamp). The timestamps maintain clock synchronization, and clock synchronization guarantees that the MPEG2 images are displayed at the correct time.

An MPEG2 TS may be carried in a higher level real-time protocol (RTP) Internet protocol (IP) packet, which is also comprised of header and payload sections. That is, several MPEG2 packets may be carried in the payload of an IP packet (Fig. 13). The RTP IP packet header carries a low resolution RTP timestamp. However, since IP packets need not be transmitted per a schedule, the delay introduced through the IP network cannot be known by the MPEG2 receiver. To address this problem the claimed invention creates a linkage between the RTP timestamp and the PCR timestamp. Then, the RTP timestamp, through its linkage to the more precise PCR timestamp, can be used to represent the MPEG2 packet target transmission time. In other words,

the delay through the IP network can be calculated since the MPEG network target transmission is known. Advantageously, the claimed invention creates the linkage between timestamps regardless of the position of the PCR MPEG2TS packet inside the IP packet payload.

Claim 1 recites a method for receiving an MPEG2 transport stream (TS) in a real-time protocol (RTP)/user datagram protocol (UDP)/Internet protocol (IP) packet (specification: page 13, ln. 3 through page 14, ln. 7, Fig. 8). Step 802 receives an IP packet via an IP network, having a variable transmission delay (page 13, ln. 3-4). Step 804 accesses a timestamp carried in a RTP packet; (page 13, ln. 4-5). Step 805 accesses an index field in the RTP packet header (page 14, ln. 3-4). Step 806 links the timestamp with a program clock reference (PCR) MPEG2TS carried in the RTP packet payload by using the index to point to a PCR MPEG2TS randomly positioned in the RTP packet payload (page 13, ln. 5-6 and page 14, ln. 4-7). Step 808 uses the timestamp to eliminate variable transmission delay jitter, associated with the PCR MPEG2TS (page 13, ln. 6-8).

Claim 12 recites a method for transmitting an MPEG2TS in a RTP)/UDP/IP packet (specification, page 15, ln. 5 through page 16, ln. 3, Fig. 9). Step 902 encapsulates a program clock reference (PCR) MPEG2TS in the RTP packet payload (page 15, ln. 7-8). Step 904 encapsulates a timestamp randomly positioned in a RTP packet payload, referencing the PCR MPEG2TS target transmission time. Step 906 encapsulates the RTP packet in an IP packet (page 15, ln. 10). Step 905 encapsulates an index in the RTP packet header pointing to the position

of the MPEG2TS in the RTP packet payload (page 16, ln. 1-3). Step 908 transmits the IP packet via an IP network (page 15, ln. 10-11).

Claim 22 recites a system for receiving an MPEG2TS in an RTP/UDP/IP packet (specification: page 6, ln. 10 through page 7, ln. 7, page 8, ln. 15-24, Figs. 1, 10, 11, and 4). A decoder, referred to as a system decoder in Fig. 11 or receiver 102 in Fig. 1, has an IP network interface to receive an IP packet via an IP network, having a variable transmission delay. The decoder has an interface to supply a RTP packet (page 6, ln. 10-19). A buffer (Fig. 11), referred to as a de-jitter module 108 in Fig. 1, has an interface to accept the RTP packet. The buffer accesses a timestamp packet index field carried in a RTP packet header (page 6, ln. 20-22), and uses the timestamp packet index to point to a PCR MPEG2TS randomly positioned in the RTP packet payload (page 8, ln. 15-24, see Fig. 4). The buffer links the timestamp with a PCR MPEG2TS carried in the RTP packet payload, and uses the timestamp to eliminate variable transmission delay jitter. The buffer has an interface to supply the PCR MPEG2TS with a constant delay (page 6, ln. 22 through page 7, ln. 2). A system clock (see Fig. 10), referred to as the de-jitter module in Fig. 1, has an interface to receive the PCR MPEG2TS with the constant delay and to provide a synchronized system time.

Claim 32 recites a system for transmitting an MPEG2TS in a RTP/UDP/IP packet (specification: page 10, ln. 24 through page 11, ln. 9, page 11, ln. 21-25, Figs. 4, 7, 10, 11). The system comprises a system clock (see Fig. 10), which is part of the encapsulation module 702 of Fig. 7, having an interface to supply a program clock reference (PCR) MPEG2TS.

A buffer (Fig. 11), which is part of the encapsulation module of Fig. 7, has an interface to accept the PCR MPEG2TS (page 10, ln. 25 through page 11, ln. 1). The buffer randomly positions the PCR MPEG2TS in a RTP packet payload (page 11, ln. 21-25, Fig. 4), encapsulates a timestamp packet index in the RTP packet header referencing the PCR MPEG2TS target transmission time, and encapsulates the RTP packet in an IP packet. The timestamp packet index points to the position of the MPEG2TS in the RTP packet payload (page 11, ln. 1-4). The buffer supplies the IP packet at an interface (page 11, ln. 5-6). A system coder (Fig. 11), referred to as a transmitter 708 in Fig. 7, has an interface to accept the IP packet and an interface to transmit the IP packet via an IP network (page 11, ln. 6-8).

Claim 41 recites a method for receiving an MPEG2TS in an RTP/UDP/IP packet (specification page 13, ln. 3 through page 14, ln. 7, page 14, ln. 17-23, and Figs. 6 and 8). Step 802 receives an IP packet via an IP network, having a variable transmission delay (page 13, ln. 3-4). Step 804 accesses a local timestamp field in an MPEG2TS delay compensation data structure, where the MPEG2TS delay compensation data structure is carried in the RTP packet payload and includes the local timestamp and a corresponding PCR MPEG2TS (page 13, ln. 4-5, page 14, ln. 17-21). Step 806 links the timestamp with a program clock reference (PCR) MPEG2TS carried in the RTP packet payload (page 13, ln. 5-6). Step 808 uses the timestamp to eliminate variable transmission delay jitter, associated with the PCR MPEG2TS (page 13, ln. 6-8). In this aspect of the method, linking the timestamp with a PCR MPEG2TS carried in the RTP packet (Step 806) includes linking the local timestamp

to the corresponding PCR MPEG2TS in the MPEG2TS delay compensation data structure (page 14, ln. 21-23, Fig. 6).

Claim 43 recites a method for transmitting an MPEG2TS in an RTP/UDP/IP packet (specification, page 15, ln. 5 through page 16, ln. 3, page 16, ln. 14-20, and Figs. 6 and 9). Step 902 encapsulates a PCR MPEG2TS in an MPEG2TS delay compensation structure, carried in the RTP packet payload (page 16, ln. 14-17). Step 904 encapsulates a timestamp in a RTP packet, referencing the PCR MPEG2TS target transmission time (page 15, ln. 8-9). Step 906 encapsulates the RTP packet in an IP packet (page 15, ln. 10). Step 908 transmits the IP packet via an IP network (page 15, ln. 10-11). In this aspect encapsulating a timestamp in the RTP packet (Step 904) includes encapsulating a local timestamp in the MPEG2TS delay compensation data structure, referencing the co-encapsulated PCR MPEG2TS (page 16, ln. 17-20, Fig. 6).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 1, 3-4, 7-8, 11-12, 14-15, 18-19, 22, 24-25, 28, 31-32, 34-35, 38, and 40-44 are anticipated under 35 U.S.C 102(e) by Ueda et al. ("Ueda"; US 2004/0190459).

2. Whether claims 2, 13, 23, and 33 are unpatentable under 35 U.S.C. 103(a) with respect to Ueda in view of Ando et al. ("Ando"; US 7,274,863).

ARGUMENT

1. The rejection of claims 1, 3-4, 7-8, 11-12, 14-15, 18-19, 22, 24-25, 28, 31-32, 34-35, 38, and 40-44 under 35 U.S.C 102(e) as anticipated by Ueda et al. ("Ueda"; US 2004/0190459).

CLAIMS 1, 12, 22, 32, 41, AND 43

In Section 3 of the Office Action claims 1, 3-4, 7-8, 11-12, 14-15, 18-19, 22, 24-25, 28, 31-32, 34-35, 38, and 40-44 have been rejected under 35 U.S.C 102(e) as anticipated by Ueda et al. ("Ueda"; US 2004/0190459). The Office Action states that Ueda discloses all the limitations of claims 1, 12, 22, 32, 41, and 43 in paragraphs [0009-0010, 0074-0075, and 0122-0123].

The Office Action states that Ueda discloses the limitation of an index field in an RTP packet header, citing paragraphs [0003], [0009-0010], [0074-0075], and Fig. 25. The Office Action states that Ueda discloses the limitation of using the index to point to a PCR MPEG2TS randomly positioned in the RTP packet payload, citing 504, Fig. 25, [0095]. The Office Action states that the storage area is maintained by using indexes (Fig. 4, [0095], and [0099].

Paragraphs [0009-0010] in Ueda disclose a conventional process where MPEP2 TS packets are carried in an RTP packet. The process generates a timestamp from the PCR field, which is included in the RTP header. These paragraphs do not describe any linkage

mechanism established between a PCR timestamp and an RTP timestamp. With respect to independent claims 1 and 12, Ueda's paragraphs do not disclose an index carried in an RTP packet header, an index that points to a PCR MPEG2TS randomly positioned in the RTP packet payload, or the linking of a timestamp with the PCR MPEG2TS as a result of the index pointing. With respect to independent claims 22 and 32, Ueda's paragraphs do not disclose a timestamp packet index carried in an RTP packet header, a timestamp packet index that points to a PCR MPEG2TS randomly positioned in the RTP packet payload, or the linking of a timestamp with the PCR MPEG2TS as a result of the timestamp packet index pointing. With respect to independent claims 41 and 43, Ueda's paragraphs do not disclose accessing a local timestamp carried in the RTP packet payload that is linked to the PCR MPEG2TS to eliminate transmission delay jitter.

Ueda's paragraphs [0074 and 0075] disclose a transmission process that generates an RTP packet by adding an RTP header to a TS (Fig. 1). The RTP header includes an RTP timestamp and RTP sequence number. A reception process depacketizes the payload from the RTP packet. A timer 130 is used to measure the arrival times and arrival time jitter is computed. With respect to claims 1, 12, 22, and 32, these paragraphs do not disclose an (timestamp packet) index carried in an RTP packet header, an (timestamp packet) index that points to a PCR MPEG2TS randomly positioned in the RTP packet payload, or the linking of a timestamp with the PCR MPEG2TS as a result of the (timestamp packet) index pointing. Neither do these paragraphs disclose accessing a local timestamp carried in the RTP packet payload that is linked to the

PCR MPEG2TS to eliminate transmission delay jitter. With respect to claims 41 and 43, these paragraphs do not disclose an MPEG2TS delay compensation data structure that is carried in an RTP packet payload and that includes a local timestamp and a corresponding PCR MPEG2TS. Likewise, these paragraphs do not disclose linking the local timestamp to the PCR MPEG2TS.

Paragraph [0099] discloses a management means that stores a payload in a buffer, and records the start address, data length, and RTP header. An index maintains a correspondence between the stored information and an RTP sequence number. The sequence numbers permit the stored packets to be arranged in the correct order, in the event they are received at incorrect times due to the effect of the network. Paragraphs [0095] and [0099] do not disclose an (timestamp packet) index carried in an RTP packet header, an (timestamp packet) index that points to a PCR MPEG2TS randomly positioned in the RTP packet payload, or the linking of a timestamp with the PCR MPEG2TS as a result of the (timestamp packet) index pointing. Neither do these paragraphs disclose accessing a local timestamp carried in the RTP packet payload that is linked to the PCR MPEG2TS to eliminate transmission delay jitter.

Paragraph [0095] describes a storage area for storing information concerning RTP packets, which is managed by an index. The information stored includes headers, start addresses, and data lengths. The Applicant notes that Ueda does not disclose a PCR MPEG2TS stored in the storage area. The ***Response to Arguments*** Section (page 11) states that Ueda discloses accessing an index field in the header, and using the index field to point to a PCR MPEG2TS randomly positioned in

the RTP packet payload, citing paragraph [0095]] and Fig. 25 - 504. Paragraph 0095 states:

> [0095] The queue 122 has a plurality of storage areas each used for storing information on an RTP packet. The storage areas are managed by using indexes. The information on an RTP packet includes the header of the RTP packet, the start address of the payload included in the RTP packet and the data length of the RTP packet. As described above, the payload is stored in the reception buffer 121.

The above-cited paragraph does *not* state that there is an (timestamp packet) index field stored in an RTP header, as cited in the claimed invention. The above-cited paragraph does *not* state that the disclosed index is carried as a (timestamp packet) index in an RTP packet header, as cited in the claimed invention. Alternately stated, the management of a storage area by an index does not mean that the index is carried in a packet header. And even if Ueda's index was carried in a header, there is no language or drawings in the Ueda reference stating that Ueda's index points to a PCR MPEG2TS, or that the index points to a randomly positioned PCR MPEG2TS.

Ueda's Fig. 25 is a diagram showing the configuration of RTP process unit 500 employed in a conventional communications apparatus [0008]. Reference designator 504 is described as PCR registers. Packet synthesis unit 506 generates RTP a timestamp from the value of the PCR filed stored in the PCR register 504 [0010]. These paragraphs do not disclose an (timestamp packet) index carried in an RTP packet header, an (timestamp packet) index that points to a PCR MPEG2TS randomly positioned in the RTP packet payload, or the linking of a timestamp with

the PCR MPEG2TS as a result of the (timestamp packet) index pointing.

Paragraphs [0008-0010] state:

> [0008] Next, the RTP process unit 500 is explained in detail. FIG. 25 is a diagram showing the configuration of the RTP process unit 500 employed in the conventional communication apparatus.
>
> [0009] In this case, in accordance with the RFC 2250, an RTP packet having an MPEG-2 transport stream (referred to hereafter simply as an MPEG2-TS) as a payload is required to include an RTP timestamp field in the RTP header as a field having a value synchronized to the data stored in a PCR (Program Clock Reference) field of a TS packet, which is enclosed in the RTP packet as a portion of the RTP payload.
>
> [0010] In the RTP process unit 500, when a TS packet generated by an MPEG-2 encoder 311 is supplied to an encoder interface (I/F) 312, the TS packet is passed on to a TS header checker 502, which checks the header of the TS packet to detect a PCR field. The TS header checker 502 stores the detected PCR field in PCR registers 504 and temporarily stores the TS packet in a TS buffer 505. A packet transmission control unit 503 manages information such as the number of input TS packets. As conditions for a packet transmission are all satisfied, the packet transmission control unit 503 issues a request for a transmission of an RTP packet to a packet synthesis unit 506. At this request, the packet synthesis unit 506 generates a timestamp from the value of the PCR field stored in the PCR registers 504. The packet synthesis unit 506 also generates the RTP packet including an RTP payload and an RTP header. The RTP payload includes the TS packets stored in the TS buffer 505 and the RTP header includes the generated timestamp in the RTP timestamp field of the RTP header.

The Applicant's claims are narrowly tailored to recite that the PCR MPEG2TS can be randomly positioned in an RTP packet, if a (timestamp packet) index is embedded in the packet header. The (timestamp packet) index is used to find the position of the PCR

MPEG2TS. The Applicant has analyzed the cited sections in detail, above, and conclusively shown that the cited sections do not disclose the claimed limitations. Ueda's Fig. 25 ([0008-0010]) and [0095] cannot be used to support the assertions made by the Examiner. Without support for the Examiner's assertions, a *prima facie* case has not been made in support of the rejection.

Thus, none of the above-cited sections from Ueda describe a process that accesses an index field in a RTP packet header, or that uses the index to locate a PCR MPEG2TS randomly positioned in the RTP payload (claims 1 and 22). Neither does Ueda describe a process that encapsulates an index field to a RTP packet header for use in locating a PCR MPEG2TS that is randomly positioned in the RTP payload (claims 12 and 32). None of the above-cited paragraphs disclose an MPEG2TS delay compensation data structure that is carried in an RTP packet payload and that includes a local timestamp linked to a corresponding PCR MPEG2TS for eliminating transmission delay jitter (claims 41 and 43).

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Ueda does disclose every limitation of claims 1, 12, 22, 32, 41, and 43. Since Ueda does not disclose every limitation of the claimed invention, he cannot anticipate these claims.

CLAIMS 3-4, 7-8, 11, 14-15, 18-19, 24-25, 28, 31, 34-35, 38, 42, and 44

Claims 3-4, 7-8, and 11, dependent from claim 1, claims 14-15 and 18-19, dependent from claim 12, claims 24-25, 28, and 31, dependent from claim 22, claims 34-35 and 38, dependent from claim 32, claim 42, dependent from claim 41, and claim 44, dependent from claim 43, enjoy the same distinctions from the cited prior art as the underlying independent claims. Therefore, Ueda cannot anticipate these dependent claims.

2. The rejection of claims 2, 13, 23, and 33 under 35 U.S.C. 103(a) as unpatentable with respect to Ueda in view of Ando et al. ("Ando"; US 7,274,863).

CLAIMS 2, 13, 23, AND 33

In Section 24 of the Office Action, claims 2, 13, 23, and 33 have been rejected under 35 U.S.C. 103(a) with respect to Ueda in view of Ando et al. ("Ando"; US 7,274,863). The Office Action acknowledges that Ueda fails to disclose a timestamp resolution of 500 ns, but that Ando discloses this feature, and that it would have been obvious to modify Ueda to include the teachings of Ando to synchronize the timestamp with the value stored in the TS packet.

The Ando reference is cited to introduce, as Background Art, the fact that the MPEG2 protocols specify a PCR arrival time of ± 500 ns. The Applicant can only find the term "synchronously" used twice in the Ando reference, again in the Background Art Section, in the explanation of conventional art time delay (col. 2, ln. 17-26). Note: Ando does not

describe a means of improving synchronization or improving jitter better than the 500 ns standard.

An invention is unpatentable if the differences between it and the prior art would have been obvious at the time of the invention. As stated in MPEP § 2143, the *KSR International Co. v Teleflex Inc.* decision (82 USPQ2d 1385, 1395-1397, 2007) suggests 7 exemplary rationales to support a conclusion of obviousness, which include:

A) Combining prior art elements according to known methods to yield predictable results;

B) Simple substitution of one known element for another to obtain predictable results;

C) Use of known technique to improve similar devices (methods, or products) in the same way;

D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

E) "Obvious to try" – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;

F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;

G) Some teaching, suggestion, or motivation in prior art would have lead one of ordinary skill to modify the prior art reference or the combine prior art references teachings to arrive at the claimed invention.

The Office Action states that modifications to Ueda would have been obvious to one of ordinary skill in the art in light of Ando. This rejection appears to be most closely grounded in the G) rationale - Some teaching, suggestion, or motivation in prior art would have lead one of ordinary skill to modify the prior art reference or the combine prior art references teachings to arrive at the claimed invention.

With respect to this rationale, MPEP 2143 (G) states that the rejection must articulate the following criteria to resolve the *Graham* factual analysis:

(1) a finding that there was some teaching, suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings;

(2) a finding that there was a reasonable expectation of success; and

(3) whatever additional findings based on the Graham factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

With respect to the first *Graham* factual analysis criteria, the obviousness rejection is based upon the assumption that that Ueda discloses all the limitations of the base claims 1, 12, 22, and 32. However, even if timestamp resolution specification of 500 ns is added to Ueda, the combination of references fails to disclose the limitations of accessing an (timestamp packet) index in an RTP header, using the (timestamp packet) index to locate a PCR MPEG2TS that is randomly positioned in the RTP payload, or linking a timestamp with the PCR MPEG2TS to eliminate

jitter, as recited in Applicant's claims 1 and 22. Neither does the combination of references describe a process that encapsulates an (timestamp packet) index field to a RTP packet header for use in locating a PCR MPEG2TS that is randomly positioned in the RTP payload, as recited in claims 12 and 32.

Further, the motivation of "synchronization" does not suggest modifications to Ueda that would make the Applicant's claim limitations obvious, based on either the Ando reference, or what was well known at the time. The 500 ns PCR arrival time jitter is defined in the protocol, and Ueda would have been unable to practice his invention without already being compliant to this specification. Therefore, there appears to be no motivation to modify Ueda based upon the rationale of synchronization. Unless it can be shown that Ando suggests modifications to Ueda that include a (timestamp packet) index, embedded in a header and pointing to a randomly positioned PCR MPEG2TS, then Ando (or synchronization) cannot be said to suggest modifications that make the claimed invention obvious. Therefore, the combination of references neither explicitly discloses all the claim limitations, nor suggests modification to Ueda that would make all the limitations obvious.

The ***Response to Arguments*** Section of the Office Action (page 12) states that the Applicant's arguments have been directed to the references individually, citing *In re Keller*. The Applicant respectfully disagrees. The Applicant has discussed the *combination* of the 500 ns jitter specification (Ando) with Ueda. However, since Ueda would have already been compliant with this specification in order to practice his invention, it is difficult to see how the 500 ns specification suggests any

modifications to Ueda. Also as noted above, the *combination* of references does not comprise all the limitation recited in the claimed invention.

The obviousness rejection may also be supported by what was well known at the time of the invention. In that case however, the obviousness rejection must provide evidence that such a modification would have been obvious to one with skill in the art based upon what was well known at the time of the invention. "(A)nalysis [of whether the subject matter of a claim would have been obvious] need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1740-41, 82 USPQ2d 1385, 1396 (2007). However, if the *prima facie* rejection is supported by what was known by a person of ordinary skill in the art then additional evidence should have been provided. Notable, when the source or motivation is not from the prior art references, "the evidence" of motive will likely consist of an explanation or a well-known principle or problem-solving strategy to be applied". *DyStar*, 464 F.3d at 1366, 80 USPQ2d at 1649.

The only principle or problem-solving strategy mentioned in the Office Action is "synchronization". The Office Action does not supply evidence that it was well known at the time of the invention to access an (timestamp packet) index in an RTP header, use the (timestamp packet) index to locate a PCR MPEG2TS that is randomly positioned in the RTP payload, or link a timestamp with the PCR MPEG2TS to eliminate jitter.

A *prima facie* analysis of motivation is especially critical in the instant rejection, since the rejection is predicated on limitations that

are not explicitly disclosed in the prior art references. The claimed invention can only be obvious if an artisan makes substantial modifications to Ueda. However, there is nothing in the Ando reference that suggests a modification. Further, no evidence has been provided that such a modification would have been obvious based upon well known principles.

With respect to the second analysis criteria needed to support the G) obviousness rationale, even if a practitioner were given the Ueda and Ando references as a foundation, no evidence has been provided to show that there is a reasonable expectation of success in the claimed invention. That is, there can be no reasonable expectation of success if the references, and what was known by artisan at the time of the invention, do not teach all the limitations of the claimed invention.

In summary, the Applicant respectfully submits that a *prima facie* case of obvious has not been supported since the combination of Ueda and Ando does not explicitly disclose every limitation of claims 1, 12, 22, and 32. Claims 2, 13, 23, and 33 are respectively dependent from these independent claims, and includes the same limitations. Neither has a case been supported that Ueda can be modified to supply the missing limitations in view of Ando, or what was well known by a person of skill at the time of the invention.

SUMMARY AND CONCLUSION

It is submitted that for the reasons pointed out above, the claims in the present application clearly and patentably distinguish over the cited references. Accordingly, the Examiner should be reversed and ordered to pass the case to issue.

Respectfully submitted,

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CLAIMS APPENDIX

IN THE CLAIMS:

1. (previously presented) A method for receiving an MPEG2 transport stream (TS) in a real-time protocol (RTP)/user datagram protocol (UDP)/Internet protocol (IP) packet, the method comprising:

receiving an IP packet via an IP network, having a variable transmission delay;

accessing a timestamp carried in a RTP packet;

accessing an index field in the RTP packet header;

linking the timestamp with a program clock reference (PCR) MPEG2TS carried in the RTP packet payload by using the index to point to a PCR MPEG2TS randomly positioned in the RTP packet payload; and,

using the timestamp to eliminate variable transmission delay jitter, associated with the PCR MPEG2TS.

2. (original) The method of claim 1 wherein accessing the timestamp carried in the RTP packet includes accessing a timestamp having a resolution of greater than 500 nanoseconds (ns); and,

wherein using the timestamp to eliminate variable transmission delay jitter, associated with the PCR MPEG2TS, includes reducing the jitter to less than 500 ns.

3. (original) The method of claim 1 wherein accessing a timestamp carried in the RTP packet includes accessing a RTP timestamp carried in a RTP packet header.

4. (original) The method of claim 3 wherein linking the timestamp with a PCR MPEG2TS carried in the RTP packet payload includes linking the RTP timestamp with a solitary PCR MPEG2TS carried in the RTP packet payload.

5-6. canceled

7. (previously presented) The method of claim 1 wherein accessing an index field in the RTP packet header includes accessing a timestamp packet index field; and,

wherein linking the timestamp with a PCR MPEG2TS carried in the RTP packet payload includes using the timestamp packet index to link an RTP timestamp to a PCR MPEG2TS randomly positioned in the RTP packet payload.

8. (previously presented) The method of claim 1 wherein accessing an index field in the RTP packet header includes accessing a PCR MPEG2TS index field;

wherein accessing a timestamp carried in the RTP packet includes accessing a PCR MPEG2TS timestamp carried in a RTP packet header; and,

wherein linking the timestamp with a PCR MPEG2TS carried in the RTP packet payload includes using the PCR MPEG2TS index to point to a PCR MPEG2TS randomly positioned in the RTP packet payload.

9-10. canceled

11. (original) The method of claim 1 wherein using the timestamp to eliminate variable transmission delay jitter, associated with the PCR MPEG2TS, includes using the timestamp to determine the target transmission time of the PCR MPEG2TS.

12. (previously presented) A method for transmitting an MPEG2 transport stream (TS) in a real-time protocol (RTP)/user datagram protocol (UDP)/Internet protocol (IP) packet, the method comprising:

encapsulating a program clock reference (PCR) MPEG2TS in the RTP packet payload;

encapsulating a timestamp randomly positioned in a RTP packet payload, referencing the PCR MPEG2TS target transmission time;

encapsulating the RTP packet in an IP packet;

encapsulating an index in the RTP packet header pointing to the position of the MPEG2TS in the RTP packet payload; and,

transmitting the IP packet via an IP network.

13. (original) The method of claim 12 wherein encapsulating a timestamp in a RTP packet, referencing the PCR MPEG2TS, includes encapsulating a timestamp having a resolution of greater than 500 nanoseconds (ns).

14. (original) The method of claim 12 wherein encapsulating a timestamp in a RTP packet includes encapsulating an RTP timestamp in the RTP packet header.

15. (original) The method of claim 14 wherein encapsulating a PCR MPEG2TS in the RTP packet payload includes encapsulating a solitary PCR MPEG2TS in the RTP packet payload.

16-17. canceled

18. (previously presented) The method of claim 12 wherein encapsulating a timestamp in a RTP packet includes encapsulating an RTP timestamp in the RTP packet header; and,

wherein encapsulating an index in the RTP packet header includes encapsulating a timestamp packet index in the RTP packet header.

19. (previously presented) The method of claim 12 wherein encapsulating a timestamp in the RTP packet includes encapsulating a PCR MPEG2TS timestamp; and,

wherein encapsulating an index in the RTP packet header includes encapsulating a PCR MPEG2TS index field in the RTP packet header.

20-21. canceled

22. (previously presented) A system for receiving an MPEG2 transport stream (TS) in a real-time protocol (RTP)/user datagram protocol (UDP)/Internet protocol (IP) packet, the system comprising:

a decoder having an IP network interface to receive an IP packet via an IP network, having a variable transmission delay, and an interface to supply a RTP packet;

a buffer having an interface to accept the RTP packet, the buffer accessing a timestamp packet index field carried in a RTP packet header and uses the timestamp packet index to point to a PCR MPEG2TS randomly positioned in the RTP packet payload, linking the timestamp with a program clock reference (PCR) MPEG2TS carried in the RTP packet payload, and using the timestamp to eliminate variable transmission delay jitter, the buffer having an interface to supply the PCR MPEG2TS with a constant delay; and,

a system clock having an interface to receive the PCR MPEG2TS with the constant delay and to provide a synchronized system time.

23. (previously presented) The system of claim 22 wherein the buffer accesses a timestamp having a resolution of greater than 500 nanoseconds (ns) and supplies a PCR MPEG2TS with a jitter of less than 500 ns.

24. (previously presented) The system of claim 22 wherein the buffer accesses a RTP timestamp carried in a RTP packet header.

25. (previously presented) The system of claim 24 wherein the buffer links the RTP timestamp with a solitary PCR MPEG2TS carried in the RTP packet payload.

26-27. canceled

28. (previously presented) The system of claim 22 wherein the buffer accesses a PCR MPEG2TS index field in the RTP packet header, accesses a PCR MPEG2TS timestamp carried in a RTP packet header, uses the PCR MPEG2TS index to point to a PCR MPEG2TS randomly positioned in the RTP packet payload, and uses the PCR MPEG2TS timestamp to eliminate variable transmission delay jitter.

29-30. canceled

31. (previously presented) The method of claim 22 wherein the buffer uses the timestamp to determine the target transmission time of the PCR MPEG2TS.

32. (previously presented) A system for transmitting an MPEG2 transport stream (TS) in a real-time protocol (RTP)/user datagram protocol (UDP)/Internet protocol (IP) packet, the system comprising:

a system clock having an interface to supply a program clock reference (PCR) MPEG2TS;

a buffer having an interface to accept the PCR MPEG2TS, the buffer randomly positioning the PCR MPEG2TS in a RTP packet payload, encapsulating a timestamp packet index in the RTP packet header referencing the PCR MPEG2TS target transmission time, encapsulating the RTP packet in an IP packet, the timestamp packet

index pointing to the position of the MPEG2TS in the RTP packet payload, and supplying the IP packet at an interface; and,

a system coder having an interface to accept the IP packet and an interface to transmit the IP packet via an IP network.

33. (previously presented) The system of claim 32 wherein the buffer encapsulates a timestamp having a resolution of greater than 500 nanoseconds (ns).

34. (previously presented) The system of claim 32 wherein the buffer encapsulates an RTP timestamp in the RTP packet header.

35. (previously presented) The system of claim 34 wherein the buffer encapsulates a solitary PCR MPEG2TS in the RTP packet payload.

36-37. canceled

38. (previously presented) The system of claim 32 wherein the buffer encapsulates a PCR MPEG2TS randomly positioned in the RTP packet payload, encapsulates a PCR MPEG2TS timestamp, and encapsulates a PCR MPEG2TS index field in the RTP packet header pointing to the position of the MPEG2TS in the RTP packet payload.

39-40. canceled

41. (previously presented) A method for receiving an MPEG2 transport stream (TS) in a real-time protocol (RTP)/user datagram protocol (UDP)/Internet protocol (IP) packet, the method comprising:

receiving an IP packet via an IP network, having a variable transmission delay;

accessing a local timestamp field in an MPEG2TS delay compensation data structure, where the MPEG2TS delay compensation data structure is carried in the RTP packet payload and includes the local timestamp and a corresponding PCR MPEG2TS;

linking the timestamp with a program clock reference (PCR) MPEG2TS carried in the RTP packet payload;

using the timestamp to eliminate variable transmission delay jitter, associated with the PCR MPEG2TS; and,

wherein linking the timestamp with a PCR MPEG2TS carried in the RTP packet includes linking the local timestamp to the corresponding PCR MPEG2TS in the MPEG2TS delay compensation data structure.

42. (previously presented) The method of claim 41 wherein accessing a local timestamp field in an MPEG2TS delay compensation data structure includes accessing a local timestamp field in each of a plurality of MPEG2TS delay compensation data structures carried in the RTP packet payload, where the MPEG2TS delay compensation data structures include an MPEG2TS selected from the group including PCR and non-PCR MPEG2TSs;

wherein linking the timestamp with a PCR MPEG2TS carried in the RTP packet payload additionally includes linking local timestamps with corresponding non-PCR MPEG2TSs; and,

wherein using the timestamp to eliminate variable transmission delay jitter, associated with the PCR MPEG2TS, additionally includes using the local timestamps to eliminate jitter associated with corresponding non-PCR MPEG2TSs.

43. (previously presented) A method for transmitting an MPEG2 transport stream (TS) in a real-time protocol (RTP)/user datagram protocol (UDP)/Internet protocol (IP) packet, the method comprising:

encapsulating a program clock reference (PCR) MPEG2TS in an MPEG2TS delay compensation structure, carried in the RTP packet payload;

encapsulating a timestamp in a RTP packet, referencing the PCR MPEG2TS target transmission time;

encapsulating the RTP packet in an IP packet;

transmitting the IP packet via an IP network; and,

wherein encapsulating a timestamp in the RTP packet includes encapsulating a local timestamp in the MPEG2TS delay compensation data structure, referencing the co-encapsulated PCR MPEG2TS.

44. (previously presented) The method of claim 43 wherein encapsulating the PCR MPEG2TS in an MPEG2TS delay compensation structure includes encapsulating a plurality of MPEG2TSs,

selected from the group including PCR MPEG2TSs and a non-PCR MPEG2TSs, in a corresponding plurality of MPEG2TS delay compensation structures; and,

wherein encapsulating a local timestamp field in the MPEG2TS delay compensation data structure includes encapsulating a local timestamp field in each MPEG2TS delay compensation structure, referencing a co-encapsulated MPEG2TS.

EVIDENCE APPENDIX

NONE

RELATED PROCEEDINGS APPENDIX

NONE